INFLUENCE OF FOREIGN DIRECT INVESTMENT ON THE ECONOMIC GROWTH: THE CASE OF TRANSITIONAL ECONOMIES IN CENTRAL AND EASTERN EUROPE AND THE COMMONWEALTH OF INDEPENDENT STATES

Using panel regression approach, the author investigates the impact of FDI on the level of economic growth in the countries of Central and Eastern Europe and the Commonwealth of Independent States for the period 1992-2009. The empirical conclusions of the paper imply that there is a positive correlation between FDI and economic growth. Human capital, index of privatization, and external trade lead to growth, while inflation and government expenditures demonstrate a negative impact on it. The qualitative analysis shows that CIS countries tend to experience higher growth paths in their later transition periods. These countries have also demonstrated the ongoing economic recovery from financial crisis. FDI inflows to Central and Eastern Europe have always been higher for the most part of their transition history.

Keywords: Foreign Direct Investment (FDI), economic growth, transitional economy, Central and Eastern Europe and the Commonwealth of Independent States.

Introduction

Foreign direct investment is regarded as an increasingly important tool that promotes economic development and integration among countries and regions (World Investment Report, 2003). In Central and Eastern Europe as well as countries of the former Soviet Union this development is partially associated with the process of transition from socialism to capitalism and integration of post-communist countries into the world economy via trade and capital flows (Di Mauro 2000). FDI in transitional economies have a potential to facilitate growth, affect technical innovation as well as accelerate enterprise restructuring (EBRD 2002). The region continued to attract foreign direct investment and by 2008 the net inflows reached its maximum record (EBRD 2008).

The primary objective of the present paper is to show empirically whether there is any impact of foreign direct investment on growth in countries of the Central and Eastern Europe1 and Commonwealth of Independent States2 for the period of 1992 through 2010.

An Overview of Economic Growth and Foreign Direct Investment in Transitional Economies

During the earlier period of transition from planned economy to market system macroeconomic stabilization and reallocation of resources were the primary tools of reforms. However, at the start of reforms it was expected that output would fall due to dramatic changes in these countries (Fischer et al. 2000).

As countries in Central and Eastern Europe had a relatively shorter period of communist rule, they did not expect considerable decline of their initial output except for Estonia, Latvia and Lithuania where in 1992 in average GDP fell by about 25 % (World Bank). Countries of former Yugoslavia experienced a similar picture. But a decline in their output was not as sharp as that from countries of the Baltic regions. In average, in early period of transition, output in former Yugoslavia decreased by about 7 % (World Bank). Poland and the Czech Republic had a better macroeconomic performance as they were earlier reformers towards their transition (Fischer et al. 2000).

In CIS countries the first year of their transition was associated with a sharp decrease of their output (fig. 1). For example, in Armenia and Georgia output fell by more than 40 %. Only resource rich countries such as Kazakhstan and Turkmenistan faced a 5 % decrease of their national output in 1992.

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1 Central and Eastern Europe includes Albania, Bulgaria, Croatia, Czech Republic, Estonia, Former Yugoslavian Republic of Macedonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.

2 Commonwealth of Independent States was formed after the disintegration of the Soviet Union in December 1991 and it consists of Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan. Estonia, Latvia and Lithuania did not sign for CIS membership and they are regarded as a part of Central and Eastern Europe.
Влияние прямых иностранных инвестиций на экономический рост…

**Figure 1**

**GDP growth in CEE and CIS countries for the period of 1992 and 1999**

**Figure 2**

**GDP growth in CEE and CIS for the period of 2000 and 2010**

*Source: World Bank Indicators Online Database*

Unlike other post-communist states, CIS countries were highly integrated with each other by strong consumption and production chains via mechanisms of centralized planning and resource allocation. Once this system collapsed output growth in the region was negatively affected. As the table shows by 1994 Central and Eastern Europe was able to achieve positive growth of 2.4%. However, Commonwealth of Independent States experienced negative growth during a few years of their transition period with an average decline of their output by –10% annually and only by 1997 growth was maintained and it reached 3% in the region accordingly.

Economies in CEE were more advanced in their transition process as compared with CIS economies (EBRD 1998) and they maintained trade and economic relations with countries in Europe, Asia, South and North America, while CIS economies were separate branches with specific production and consumption tasks within a centralized economy and they could not maintain trade and economic relations outside the former Soviet Union. Therefore, this was a key reason why the earlier period of transition was more painful to them than their counterparts in Central and Eastern Europe.

The first half of the present century demonstrated a stable growth before the world economy was hit by financial crisis. Central and Eastern Europe had an annual growth of 5% and CIS countries – 8% of
growth (fig. 2). A driving force for a steady growth in world economy could be attributed to rising demand for oil and gas in the world market during this period (IMF 2005) and significant dependence of some countries of the region on Russia’s economic performance. Due to high prices for oil and gas Azerbaijan, Kazakhstan, Russia, Turkmenistan and to some extent Uzbekistan enjoyed a higher growth. As a result, in Kazakhstan and Russia demand for construction and infrastructure rose as well requiring a higher degree of labor force involvement.

Given limited availability of local labor force, the rising demand was met by imports of abundant labor from countries such as Armenia, Kyrgyz Republic, Moldova and Tajikistan. Because of regular remittances, these states were able to sustain their growth. For example, in the poorest countries of the region such as Tajikistan and Moldova, remittances account for 45% and 34% of their GDP respectively (UNDP).

The 2008 financial crisis hit both regions and some nations were significantly affected. In Central and Eastern Europe Estonia, Latvia, Lithuania, Romania and Slovenia were more fragile to crisis. In 2009 Baltic States experienced almost a similar output decline of –16% as they had it in initial period of their transition (World Bank). In general this region faced –7% decline in their output. This crisis had a negative impact on both resource abundant and poor CIS countries. A decrease in oil prices left Russia with -8% decrease of output in 2009 and as a result Armenia, Moldova and Ukraine as dependent from Russia’s economic performance were negatively affected (World Bank).

In short, growth has recovered in almost all transitional economies which is facilitated by external environment. In addition to this, the outlook for growth has worsened and its associated risks increased as well, mainly due to ongoing financial market volatility and weaker growth in euro zone nations (EBRD 2011).

It should be noted that the collapse of the centralized planned economy and import substitution systems in Central and Eastern Europe as well as the former Soviet Union provided myriad investment opportunities (Campos et al. 2008). Foreign direct investment was regarded to be an important tool for restructuring and modernization of ineffective state owned companies and to be successfully integrated with contemporary international economic relations. In this regard, countries in transition undertook major steps towards attracting FDI: certain legislation acts were adopted, foreign investors were given an opportunity to participate actively in privatization of public enterprises, and trade and financial market liberalization were promoted (Demekas et al. 2005).

It is apparent from figure 3 that FDI inflows to the region have had an upward growth and by 2008 the region reached its maximum level. The trend was uneven, with Central and Eastern Europe showing a higher increase until 2009. Between 1992 and 1999 FDI inflows to Central and Eastern Europe increased by 90%, while in CIS region – by 75% accordingly. Before the financial crisis, between 2000 and 2008, there was 95% and 80% growth of FDI inflows to transitional economies of the Commonwealth of Independent States and Central and Eastern Europe (World Bank).

Figure 3
FDI, net inflows (Balance of Payments, current billion USD) for the period of 1992 and 2010

Source: World Bank Indicators Online Database
Within each region the pattern of FDI inflows strongly favors certain countries. For example, in Central and Eastern Europe Czech Republic, Hungary and Poland are the key recipients accounting for the bulk of foreign direct investment located in this region (World Bank). This can be attributed to the fact that they made more progress with economic reforms during 1990s (World Investment Report 1999) and obtained an earlier accession to EU.

In Commonwealth of Independent States countries with sufficient gas and petroleum reserves and a relatively higher level of developed manufacturing sectors such as Azerbaijan, Belarus, Kazakhstan, Russia, Turkmenistan and Ukraine located the bulk, i.e. 90% of all the region’s FDI inflows (World Bank). Other nations are landlocked and lack relevant production and infrastructure facilities necessary to attract foreign capital to their economies.

As the World Investment Report 2011 points “global foreign direct investment has not yet bounced back to pre-crisis levels, though some regions show better recovery than others.” This may be attributed to CIS region where FDI inflows increased by 3% in 2010, after falling by more than 40% in 2009. In Central and Eastern Europe still recovery did not occur and in 2010 this region experienced a negative growth.

Prospects for inward FDI remains positive to Commonwealth of Independent States. Russia entered WTO in the end of 2011 and new round of privatization is expected to take place in major economies of the region (namely Russia and Ukraine). In addition to this, an expected increase of prices for gas and petroleum will have a positive impact on FDI inflows (World Investment Report 2011, p. 89). As for Central and Eastern Europe, achievement of pre-crisis levels will depend upon joint coordination and solution of debt problems in some EU member-countries.

**Methodology**

Nearly all empirical studies related to the growth effect of FDI use GDP per capita as a key dependent indicator (Alfaro et al. 2003, Borensztein et al. 1998). In this paper the same indicator is also used as a response variable. The theoretical framework of the paper follows the empirical approach applied by Borensztein et al. (1998). Their model is expressed as follows:

\[ g = c_0 + c_1FDI + c_2FDI \times H + c_3H + c_4Y_0 + c_5A, \]

where \( g \) is GDP per capita growth, FDI is foreign direct investment, \( H \) the stock of human capital, \( Y_0 \) initial GDP per capita, and \( A \) refers to the set of other variables that may affect economic growth. The key independent variable is measured as a ratio of GDP and it represents the fraction of goods and services produced by foreign companies. The initial GDP (\( Y_0 \)) depicts the role of the “catch-up” effect. A group of variables \( A \) consists of control and policy variables which are frequently included to models as determinants of growth in cross-country studies (Barro 1993). This set of explanatory variables includes government consumption, the black market premium on foreign exchange, and the inflation rate. For the present paper I seek to utilize the following model:

\[
\text{GDPPCG}_{it} = c_0 + c_1\log(\text{initial GDP})_{it-1} + c_2FDI_{it-2} + c_3FDI_{it-1} \times HC_{it-1} + c_4HC_{it-1} +
+c_5\text{EBRDPRVIN}_{it-1} + c_6\text{INFL}_{it-1} + c_7\text{TRADE}_{it-1} + c_8\text{GEX}_{it-1} + e_{it-1},
\]

where \( i \) represents a country, e.g. Albania, Armenia, etc. and \( t \) is year. The dependent variable denoted by GDP per capita growth is from 1993 through 2010 and the explanatory variables are taken from 1992 through 2009 accordingly.

This model is slightly modified and it comprises a transition specific variable denoted by index of privatization and trade.

**Data Description**

There are several sources of data on foreign direct investment and other macroeconomic indicators. The World Bank provides data on GDP per capita growth, foreign direct investment, exports and imports of goods and services and inflation rate. EBRD Transition Reports has yearly information on general government expenditures and index of large and small scale privatization reforms in transitional economies. Barro and Lee provide long term historical dataset on educational attainment for groups of countries and regions.

In the first place, it seems to be more appropriate to give a detailed explanation of variables used in our model.
GDPPCGt refers to annual percentage growth rate of GDP per capita based on constant local currency. GDP per capita is gross domestic product divided by midyear population. GDP at purchaser’s prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources (World Bank).

\[
\log(\text{initial GDP})_{t-1} \text{ is a logarithm form of the initial GDP per capita in current US dollars.}
\]

\[
F\text{DI}_{t-1} \text{ – Foreign Direct Investment, net inflows (% of GDP). It represents the net inflows of investment to acquire a lasting management interest (10 % or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors, and is divided by GDP (World Bank).}
\]

\[
\text{HC}_{t-1} \text{ – secondary education completed in percentage in case of people who are 25 and older (Barro and Lee webpage on countries’ educational attainment).}
\]

\[
\text{EBRDPRIVIN}_{t-1} \text{ is EBRD Index of Privatization which is calculated on the basis of the scale of privatization reforms. It highlights both large scale and small scale of privatization in transitional economies. In order to capture the effect both of them I averaged these indexes. According to EBRD methodology the range of the scale varies between 1 and 4.3 where the first represents a lower and insufficient and 4.3 higher and successful privatization reforms (EBRD Transition Reports).}
\]

\[
\text{INFL}_{t-1} \text{ represents inflation, GDP deflator (annual %). Inflation as measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole. The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency (World Bank).}
\]

\[
\text{TRADE}_{t-1} \text{ is the sum of exports and imports of goods and services measured as a share of gross domestic product (World Bank).}
\]

\[
\text{GEX}_{t-1} \text{ (in percentage to GDP) are expenditures of general government, excluding those by state-owned enterprises (EBRD Transition Report 2004).}
\]

Table 1 shows summary statistics on all variables. On average, in the region for the last two decades GDP per capita growth was 3.4 %, with a minimum of –31 % and a maximum of 33 % accordingly. Foreign direct investment constituted on average 5 % of GDP. The outflow of capital from the region was 14 %, while the highest amount of FDI attracted to transitional economies made up 52 % of GDP. This table also reveals an interesting result on inflation rate. On average, the annual rate of inflation has been 187 %. The lowest inflation was about 19 %. Out of these nations Georgia showed historically the highest price increase in the region with more 15,000 %. In our sample, 35 % of people above 25, on average completed their secondary education which is one of the highest results in the world. Privatization reforms conducted in transitional economies, in general, demonstrate some success with an average of 3.7 points. The share of trade and government expenditures to GDP constitute on average 100 % and 36 % accordingly.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita growth (annual percentage growth)</td>
<td>3.35</td>
<td>7.45</td>
<td>–30.69</td>
<td>33.03</td>
</tr>
<tr>
<td>Logarithm of initial GDP per capita (in percentage)</td>
<td>0.22</td>
<td>0.32</td>
<td>–0.39</td>
<td>1.27</td>
</tr>
<tr>
<td>Foreign Direct Investment (in percentage to GDP)</td>
<td>4.84</td>
<td>5.96</td>
<td>–14.37</td>
<td>52.05</td>
</tr>
<tr>
<td>Foreign Direct Investment \times Human Capital</td>
<td>171.92</td>
<td>233.96</td>
<td>–27.04</td>
<td>2550.53</td>
</tr>
<tr>
<td>Human Capital (in percentage)</td>
<td>34.48</td>
<td>12.35</td>
<td>13.3</td>
<td>73</td>
</tr>
<tr>
<td>EBRD Index of Privatization (in scale points)</td>
<td>3.69</td>
<td>0.66</td>
<td>2</td>
<td>4.3</td>
</tr>
<tr>
<td>Inflation (annual percentage)</td>
<td>186.79</td>
<td>875.67</td>
<td>–18.85</td>
<td>15442.3</td>
</tr>
<tr>
<td>Trade (in percentage to GDP)</td>
<td>99.98</td>
<td>32.66</td>
<td>22.55</td>
<td>202.74</td>
</tr>
<tr>
<td>Government Expenditures (in percentage to GDP)</td>
<td>35.70</td>
<td>10.05</td>
<td>12.30</td>
<td>82.90</td>
</tr>
</tbody>
</table>
Regression Results and Discussions

Limitations of the Model. The choice of panel approach versus long-established cross section approach in growth studies may be explained by the number of transitional economies and years of observation. I recognize that the present empirical model may have some problems, namely the existence of omitted variables, reverse causality and endogeneity problems. In growth studies, in principle, the endogeneity problem can be avoided by applying instrumental variable techniques, the fundamental problem is that there are no ideal instruments available (Borensztein et al. p. 133). In this regard I do not consider this problem in this paper. Concerning omitted variables, I must admit that the transition process in the region may be linked with various variables, which are hard to capture. Hence, by making use of fixed effect method I seek to control for all unobserved time-invariant characteristics that could be correlated with growth and foreign direct investment.

Empirical Results. The regression result for the fixed effect model reveals the following empirical findings (table 2). The key explanatory variable denoted by foreign direct investment as a ratio to gross domestic product is statistically significant in all estimated equation. A one per cent increase in FDI results in an average increase of growth per capita by 0.55% after controlling for other predictor variables accordingly.

Table 2

<table>
<thead>
<tr>
<th>FDI and per capita GDP growth (period: 1992 – 2009)</th>
<th>Regression number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Variables</td>
<td>Coefficient (p-values)</td>
</tr>
<tr>
<td>Log(initial GDP)</td>
<td>-2.1394 (0.101)*</td>
</tr>
<tr>
<td>FDI</td>
<td>0.1251 (0.049)**</td>
</tr>
<tr>
<td>HC</td>
<td>0.4401 (0.009)**</td>
</tr>
<tr>
<td>FDI*HC</td>
<td>-0.0231 (0.000)**</td>
</tr>
<tr>
<td>EBRD Index of Privatization</td>
<td>3.4518 (0.000)**</td>
</tr>
<tr>
<td>Inflation</td>
<td>-0.0018 (0.108)</td>
</tr>
<tr>
<td>Trade</td>
<td>0.0154 (0.436)</td>
</tr>
<tr>
<td>Government Expenditures</td>
<td>-0.1344 (0.155)</td>
</tr>
<tr>
<td>Number of Observations</td>
<td>435 337 337 296 296 295 274</td>
</tr>
<tr>
<td>Number of Groups</td>
<td>25 19 19 19 19 19 19</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.013 0.112 0.15 0.21 0.22 0.22 0.23</td>
</tr>
</tbody>
</table>

** significant at 95 %, * significant at 90 %

Note for table 2. Some countries of the sample do not have data on human capital from Barro and Lee education attainment website. In addition to this, EBRD started to construct index of privatization in transitional economies since 1994. Therefore the software automatically adjusts for missing values.

Except for the interaction of foreign direct investment and human capital all other independent variables are consistent with their expected signs and empirical results of the original model. The logarithm form of initial GDP per capita is negatively correlated with growth3.

Human capital denoted as secondary education completed positively affect output growth per capita and on average it leads to its increase by 0.36 % when other predictor variables are held constant.

A transition specific variable represented as a privatization index that is developed by EBRD reveals an empirically interesting result. It highlights that ongoing reforms implying privatization of state owned enterprises facilitate stable growth. It created favorable conditions for business environment ultimately affecting growth in the region (EBRD Transition Report 2004).

Since the region has experienced a relatively high inflation and the average rate is about 188 % it had a negative impact on growth. As Fischer (1983) emphasized a higher inflation may lower the real balances which further reduce the efficiency of factors of production.

The last two independent variables being consistent with their expected signs seem to be statistically insignificant in this model.

Concluding Remarks

This paper has explored the impact of FDI on growth in transitional economies for the period of nearly two decades. An overview of growth in region showed that during 1990s countries in Central and Eastern Europe were able to reverse their growth rates in their earlier transition and experience steady growth afterwards. However, for CIS countries a positive growth was achieved after a few years of their independence and by 2000 their growth rates were modest. The year 2000 until the world’s financial crisis revealed an interesting picture implying that CIS countries maintained an average of 8 % growth. The first year of the crisis led CEE countries experienced a negative growth of around 7 %, while in CIS region it was less 2 %. The recovery after crisis seems to be more challenging for Central and Eastern Europe.

The dynamics of FDI inflows to the region was uneven favoring mainly economies in Central and Eastern Europe and resource abundant economies of the former Soviet Union. In 2009 the amount of FDI inflows to CIS exceeded that in CEE and in 2010 there were major outflows of foreign capital from Central and Eastern Europe.

The key empirical finding of the paper is that there is a positive correlation of FDI and growth in the region. Except for the interaction of foreign direct investment and human capital all other predictor variables were consistent with their expected signs. Trade and government expenditures did not result in obtaining statistically significant coefficients, even though their expected signs were consistent with theory.

Finally, it is worth mentioning that there are some other directions for further research. Since the interaction terms of foreign direct investment and human capital did not highlight our expectations, perhaps further studies would be necessary to explore this problem. Authors of the original model utilized some other control variables such as black market premium, assassinations, wars, political rights, etc. and they might have come up with a different conclusion concerning the interaction term. Unfortunately, data for the above mentioned variables were not readily available in order to include them in right hand side of the equation. Nevertheless, this empirical study would make some contribution to the existing literature.

REFERENCES

Влияние прямых иностранных инвестиций на экономический рост
на przykład стран Центральной и Восточной Европы и Содружества Независимых Государств

С использованием регрессионного подхода автор рассматривает влияние прямых иностранных инвестиций на уровень экономического роста в странах Центральной и Восточной Европы, а также Содружества Независимых Государств в период с 1992 г. по 2009 г. Эмпирические выводы статьи предполагают, что существует положительная взаимосвязь между ПИИ и экономическим ростом. Человеческий капитал, индекс приватизации и внешняя торговля способствуют уровню роста, в то время инфляция и государственные расходы имеют обратный эффект. Качественный анализ показывает, что в странах СНГ наблюдается тенденция к более высокому уровню экономического роста на поздних этапах переходного периода. Эти государства также проявили непрерывное восстановление своих экономик после финансового кризиса. Приток ПИИ в страны Центральной и Восточной Европы всегда находился на более высоком уровне в большей части их переходной истории.
Ключевые слова: прямые иностранные инвестиции (ПИИ), экономический рост, переходная экономика, Центральная и Восточная Европа и Содружество Независимых Государств.

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